

**Abstract**

Assay systems and components, and methods of using same. The assay system

5 preferably includes one or more of the following components: i) an apparatus for retaining/positioning an assay plate; ii) a device for detecting proper alignment of an assay plate; iii) an apparatus for training a probe to locate and aspirate reagents and/or one or more samples; iv) a fluid handling device for aspirating reagents; v) an apparatus for detecting the presence/absence of a reagent comprising a fluid handling manifold

10 having both a transparent light path and a fluid conduit defined therein and vi) a positive displacement pump having a pump chamber improved to contain one or more of: bypass means; cleanout means; and/or gas and sediment removal means.